

Disterigma pachyphyllum (Hemsl.) Blake.

Vaccinium pachyphyllum Hemsl. Biol. Centr. Amer. Bot. 2: 275. 1881.

This Costa Rican species is related to *D. alaternoides* (H. B. K.) Niedenzu, and Hörold's record of that species from Central America doubtless refers to it.

Disterigma ovatum (Rusby) Blake.

Vacciniopsis ovata Rusby, Bull. Torrey Club 20: 434. Pl. 170. 1893.

The flowers in this species, the type of the genus *Vacciniopsis*, are both 4- and 5-merous on the same specimen, and the plant is clearly a member of the genus *Disterigma*. Its closest ally is *D. popenoei* Blake, of Ecuador, which has more strongly 3-nerved leaves, more numerous flowers (about 6 in a fascicle), narrower white corollas rather densely spreading-puberulous outside, and different stamens. In *D. popenoei* the filaments are 5 mm. long and pilose on both sides except toward base, the anther sacs are 1 mm. long, and the tubules 2 mm. In *D. ovatum* the filaments are 2.8 mm. long, pilose only above the middle, the anther sacs 1.5 mm. long, and the tubules 1.7 mm. In Dalla Torre & Harms' Index, *Vacciniopsis* is placed in a different tribe (*Thibaudieae*) from *Disterigma*. It is not mentioned in Hörold's revisionary treatment of the American representatives of that tribe.

BOTANY.—*Tetrastylis*, a genus of *Passifloraceae*.¹ ELLSWORTH P. KILLIP, U. S. National Museum.

Tetrastylis, a genus of *Passifloraceae*, was established by Barbosa Rodriguez² in 1882, and to it was assigned a single Brazilian species, *Tetrastylis montana* Barb. Rodr. The description of the plant was very complete, and was accompanied by an excellent illustration. The principal points of difference between this genus and its nearest relative, *Passiflora*, as noted by Barbosa, were:

TETRASTYLIS

1. Four styles.
2. Gynophore curved.
3. Stamen filaments united beyond gynophore, only the extremities free.
4. Four placentae.

PASSIFLORA

1. Three styles.
2. Gynophore straight.
3. Stamen filaments free from gynophore to extremities.
4. Three placentae.

In the *Natürlichen Pflanzenfamilien*³ Harms recognized *Tetrastylis* as a valid genus, placing it immediately before *Passiflora*. In the *Index Kewensis* it was given as a synonym of *Passiflora* and *Tetrastylis montana* was identified with *Passiflora ovalis*, a plant figured by

¹ Published by permission of the Secretary of the Smithsonian Institution. Received May 17, 1926.

² Rev. Engenharia 4: 260. 1882.

³ P. 86. 1894.

Velloso in the Flora Fluminensis. In the first supplement to the *Natürlichen Pflanzenfamilien*⁴ Harms created the section *Tetrastylis* in the genus *Passiflora* for this plant. Several collections of this species have been made, and these have generally been distributed as *P. ovalis* Vell.

A few years ago several specimens of a Costa Rican plant, collected by Mr. H. Pittier, were distributed by the Instituto Físico-Geográfico Nacional of Costa Rica under the name *Passiflora adenopoda* DC. The specimens resemble *P. adenopoda* only in general leaf shape; the structure of the flower is essentially identical with that of *Tetrastylis*, that is, there are four styles, four placentae, and a curved gynophore, and the stamens are monadelphous *beyond* the gynophore. Several specimens of this same plant have recently been collected in Costa Rica by Mr. Paul C. Standley. This Costa Rican material represents a species, apparently undescribed, closely related to the Brazilian plant of Barbosa Rodriguez. The four details mentioned above seem to the writer of generic, rather than subgeneric, importance, and *Tetrastylis* should undoubtedly be maintained as a distinct genus.

A plant from Siam recently described by Gagnepain⁵ as *Passiflora octandra* is said to have 3, or often 4, styles, 3, or often 4, placentae. Other unusual features are four or five sepals, four or five petals, and six or eight stamens. Except for this plant, which may well represent a distinct genus, and the two species of *Tetrastylis*, the writer knows of no plants of this relationship with four styles and placentae.

A description of *Tetrastylis* and the two known species follows:

Tetrastylis Barb. Rodr. Rev. Engenharia 4: 260. 1882.

Passiflora Sect. *Tetrastylis* Harms, Nat. Fam. 1. Aufl. 1. Nactr. 256. 1897.

Shrubby or herbaceous vines, bearing simple, axillary tendrils; stipules present; leaves alternate, petiolate; flowers in axillary racemes, or solitary or in pairs in the axils of the leaves; flower tube short, patelliform; sepals 5; petals 5, alternate with the sepals, inserted at the margin of tube; corona filamentose; operculum membranous; gynophore elongate, curved; stamens 5, the filaments united beyond gynophore into a broad membrane, only the extremities free, monadelphous; anthers oblong, bifid at base; ovary oblong, stipitate, obtusely 4-angled; ovules 4-ranked on 4 parietal placentae.

KEY TO SPECIES

Flowers in axillary racemes; leaves entire, coriaceous; stipules filiform, soon deciduous; petioles glandular at base; woody vine (Brazil). 1. **T. ovalis**
 Flowers solitary or in pairs in the axils of the leaves; leaves 3-lobed, membranous; stipules semi-ovate, persistent; petioles glandular at middle; herbaceous vine. (Costa Rica).....2. **T. lobata**

⁴ P. 256. 1897.

⁵ Bull. Mus. Hist. Nat. Paris 25: 128. 1919.

1. *Tetrastylis ovalis* (Vell.) Killip, comb. nov.

Passiflora ovalis Vell. Fl. Flumin. 9: pl. 75. 1827 (figure only); M. Roemer, Fam. Nat. Syn. 2: 168. 1846.

Passiflora silvestris Mast. in Mart. Fl. Bras. 13¹: 620. pl. 127. 1872, not *Passiflora silvestris* Vell.

Tetrastylis montana Barb. Rodr. Rev. Engenharia 4: 260. 1882.

Woody vine; glabrous throughout; stems terete, longitudinally sulcate, suberose below; stipules setaceous, 8 to 10 mm. long, soon deciduous; petioles 2.5 to 4 cm. long, biglandular at base, the glands orbicular, about 1.5 mm. in diameter, sessile; leaves elliptic or elliptic-oblong, 6 to 10 cm. long, 3 to 5.5 cm. wide, not lobed, abruptly acuminate at apex, acutish at base, entire, usually cartilaginous at margin, 1-nerved (principal secondary nerves 7 or 8 pairs, arcuate), conspicuously reticulate-veined, coriaceous, sublustrous; flowers in axillary racemes up to 75 cm. long, the peduncles short, about 1 cm. long, stout, 2-flowered, the pedicels 1.5 to 4 cm. long, articulate above middle; bracts and bractlets setaceous, 1 to 2 mm. long, soon deciduous; flower tube 3 to 5 mm. long; sepals oblong, 2.5 to 3 cm. long, 0.5 to 0.7 cm. wide, obtuse, ecorniculate, subcoriaceous, dull red without (when dry), paler within, longitudinally streaked with red; petals oblong or lance-oblong, 1.5 to 2 cm. long, 0.3 to 0.5 mm. wide, obtuse, membranous, whitish, longitudinally streaked with red both without and within; corona filaments narrowly liguliform, in 2 series, the outer about 1 cm. long, the inner half as long; operculum membranous, closely plicate, incurved, crispate; limen annular, fleshy; gynophore about 2 cm. long; ovary oblong; fruit (according to Velloso) oblong, about 10 cm. long, 6 cm. wide; seeds obovate, truncate at apex.

Specimens examined (all Brazil):

Rio de Janeiro, *Glaziou* 7859 (Paris, Berlin, Copenhagen), 8269 (Berlin, Copenhagen), 14854 (Paris, Berlin, Geneva, Kew, Copenhagen), 14873 (Paris); *Peckholt* 7 (Berlin); *De Moura* 503 (Berlin). Bahia, *Blanchet* 1708 (British Museum). Without definite locality, *St. Hilaire* 1689 (Paris).

The nomenclature pertaining to this species is somewhat involved. Velloso's figure was unaccompanied by any description or explanatory notes, and under the rules of nomenclature does not constitute valid publication. Roemer, however, in his elaborate monograph of Passifloraceae, gives a detailed description of Velloso's plate, and the species must be considered to date from this publication in 1846. Masters' treatment of the species in the *Flora Brasiliensis*⁶ is a curious one. Here species no. 77 is given as "*Passiflora silvestris* Vell." and Velloso's plate 74, bearing this name, is cited. The description which Masters then gives of this species applies in general, however, to Velloso's plate 75 (*P. ovalis*), and the figure with which Masters illustrates "*Passiflora silvestris*" (plate 127) agrees almost exactly with Velloso's *P. ovalis*, and bears no resemblance to the plate of *P. silvestris* of Velloso. The inflorescence as shown by Masters' plate is an elongate raceme with 2-flowered peduncles, and the leaves are narrowed at the base, with the petioles biglandular. The detailed enlargement of the flowers shows four styles but a *straight* gynophore with the staminal structure as in true *Passi-*

⁶ 13¹: 620. pl. 127. 1872.

flora. This conventionalized flower sketch I believe was made from two different plants, one true *Tetrastylis ovalis*, the other some unknown species of *Passiflora* of the *Granadilla* relationship. This solution is also suggested by the specimens which Masters cites under his "*Passiflora silvestris*." The first mentioned is "Velloso," the specimen not being seen by Masters. The second is "Luschnath." This specimen I did not see at any of the European herbaria visited, and at Kew it is represented only by a sketch of the flower. This has three styles and a straight gynophore. Accompanying the sketch is a note by Masters "P. *silvestris* St. Hil.?" The third specimen cited is "Prov. Minas Geraës, St. Hilaire 1689." This specimen, which I saw at Paris, is *Tetrastylis ovalis*.

Finally, as to "*Passiflora ovalis* Vell." Masters merely lists this among certain doubtful species, stating that only a fruiting specimen was figured.

The identity of *Passiflora silvestris* Vell. (plate 74) I have not fully established. It represents a plant closely related to *Passiflora jileki* Wawra if not that species.

2. *Tetrastylis lobata* Killip, sp. nov.

Stem stout, triangular, grooved, glabrous; stipules in pairs, semi-ovate, 5 to 15 mm. long, 3 to 8 mm. wide, aristate, entire; petioles 3 to 8 cm. long, canaliculate above, hispidulous, bearing near middle 2 subsessile saucer-shaped glands, a second pair occasionally present at base of blade, the glands 1 to 2 mm. in diameter; leaves 10 to 15 cm. long (along midnerve), 12 to 20 cm. wide (between apices of lateral lobes), 3-lobed half to two-thirds the length of the blade (lobes variable, oblong, oblong-lanceolate, or broadly ovate-lanceolate, 2.5 to 6 cm. wide, acuminate or acute), cordate, 3-nerved, entire or slightly undulate, membranous, dark green and minutely hispidulous with hooked hairs above, glabrous, (occasionally slightly scabrous), and mottled with dull dark red beneath; peduncles solitary or in pairs, 2 to 3.5 cm. long, glabrous or sparingly hispidulous; bracts setaceous, 2 to 3 mm. long, borne on lower half of peduncle; flowers 3.5 to 6 cm. wide, the tube patelliform, about 3 mm. long; sepals oblong-lanceolate, 1.5 to 2.5 cm. long, 0.4 to 0.8 cm. wide, sparingly hispidulous and green without, glabrate and white, or pale rose, streaked longitudinally with violet within, terminating in a horn about 2 mm. long; petals ovate-lanceolate, 0.8 to 1.5 cm. long, 0.5 to 0.7 cm. wide, obtuse, streaked longitudinally with violet on both faces; corona filaments in a single series, filiform, narrowly ligulate, 1 to 2 cm. long; operculum membranaceous, deep red, strongly plicate, incurved up to 5 mm. high, minutely denticulate; nectar ring annular, less than 0.5 mm. high; limen membranaceous, 1 to 2 mm. high, incurved, crenulate; gynophore about 1 cm. long; stamens united to within 3 mm. of their tips, forming a membranous androecium, the upper portion free from the gynophore, about 2.5 mm. long, the lower portion closely sheathing the gynophore; ovary narrowly ovoid, obtuse, tapering at base, glabrous; styles clavate, 4.5 mm. long, recurved; stigmas saucer-shaped; fruit obovoid, about 10 cm. long, 3 cm. in diameter, green, white-spotted; seeds obovate.

Type in the U. S. National Herbarium, no. 1,251,085, collected at La Hondura, Province of San José, Costa Rica, altitude 1200-1500 meters, March 9, 1926, by Paul C. Standley (no. 51917).

Additional specimens examined (all Costa Rica):

Finca de Chirripó, Plains of Zent, altitude 200 meters, *Pittier* 16055 (U. S. N. M., Brit. Mus.), 16100 (Brit. Mus.). Tilarán, altitude 750 meters, *Valerio* 14 (U. S. N. M.). Vicinity of Orosi, Province of Cartago, *Pittier* 16026 (U. S. N. M.); *Standley* 39673, 39720, 39793. Santa María de Dota Province of San José, *Standley* 41796. El Muñeco, on Río Navarro, Province of Cartago, *Standley* 51389. La Estrella, Province of Cartago, *Standley* 39352. Quebrada Serena, southeast of Tilarán, Province of Guanacaste, *Standley* 46140 (all U. S. N. M.).

Two of these specimens (*Pittier* 16055 and *Valerio* 14), have leaves less deeply lobed than are those of the type, and the pubescence is rather denser. The general appearance of *Standley*'s 46149 is quite different, the leaves drying a lighter green and the lateral lobes being much reduced. The flowers of all of the specimens here cited seem the same, and the differences in vegetative characters are no greater than in many species of the family.

This plant is not to be confused with *Ceratosepalum micranthum* Oersted⁷ (later reduced to *Passiflora ceratosepala* Mast.). *Ceratosepalum* was segregated from *Passiflora* mainly on the basis of horned sepals. Among several specimens of Passifloraceae sent me by the Universitetets Botaniske Museum, Copenhagen, for study were two sheets labeled "Ceratosepalum" in Oersted's handwriting, which evidently are type material of *Ceratosepalum micranthum*. They prove to be *Passiflora adenopoda* DC., a fairly common species ranging from Mexico to northwestern South America.

ANTHROPOLOGY. *The fundamental principles of Algonquian languages.*¹ TRUMAN MICHELSON, Bureau of American Ethnology.

The grammatical processes are prefixing, suffixing, reduplication of various types, vocalic change, and composition. All objects are classified as animate and inanimate. Singular and plural are distinguished; as also the first person plural exclusive and inclusive; difference and identity of third persons are carefully kept apart by grammatical devices. In the verb there are frequently two stems, and sometimes more. Of these those which under no circumstances can occur in the initial position are very few in number. When two stems, both of which can occur in the initial position, are combined in a single compound, it is quite conventional as to which precedes or follows. The phonetic changes resulting from such combinations are relatively few and are of a simple character. It should be noted that a number of stems indicating parts of the body occur in the second position only.

⁷ OERSTED, Rech. Fl. Amer. Centr. 18. pl. 17. 1863.

¹ Summary of an address given before Section L of the American Association for the Advancement of Science, January 3, 1925. Received May 26, 1926.